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THE ELEMENTARY SCHOOL TEACHER

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PREPARATION IN THE ELEMENTARY SCHOOL FOR INDUSTRIAL AND DOMESTIC LIFE

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The aim of public-school education today, whatever it may have been in the past, is not to drive knowledge into the pupils nor even to draw it out. It is a much broader and higher one, viz., individual and national efficiency. This general aim involves at least four special aims in the case of each individual pupil—bodily well-being, vocational ability, a modicum of culture, social service. These, unfortunately, while their importance is admitted by most educators, do not all receive a fair share of attention in the elementary school. Some attention is usually paid to the first and, in the best schools, a little to the last; but by far the most time is devoted to means leading toward the third (culture), while the second item in the analysis (vocational ability) is almost wholly neglected. The schools thus prepare directly for commercial and professional life, in which the three R's are the primary tools; but hardly at all for the various walks of industrial and domestic life, in which other tools are needed. This is doubtless due to the fact that our grammar schools, as their name indicates, are lineal descendants of the schools attached in mediaeval times to churches and monasteries, whose function was to teach boys to read and copy classical manuscripts and to prepare for the priesthood. The great majority of boys, who were destined for agricultural and industrial life, got their training

on farms or as apprentices to members of trade-guilds; while girls, naturally, got their training for domestic life in the home. All this has been changed within the past century by the rise of the factory system, the consequent growth of cities and inrush to them from the country, the decay of the system of apprenticeship, the disappearance of domestic arts and activities, and the establishment of free public schools. These last, while they have rendered incalculable service to the nation, have none the less tended to create and perpetuate an academic prejudice against manual work; and it is only in recent years that educators have been learning to realize the dignity of labor.

It is generally admitted that the public schools do not prepare their pupils for industrial and domestic life; and it seems reasonable to attribute to this defect the lack of interest in school work, on the part of many boys and girls, and their rapid dropping out of school from the age of twelve and upward. This tendency is shown clearly and graphically in Professor Thorndike's recently published study entitled *The Elimination of Pupils from School*, issued as a bulletin of the Bureau of Education, Washington. Professor Thorndike, dealing first with elimination by grades, estimates "that the general tendency of American cities of 25,000 and over is, or was at about 1900, to keep in school out of 100 entering pupils 90 till Grade IV, 81 till Grade V, 68 till Grade VI, 54 till Grade VII, 40 till Grade VIII, and 27 till the first year of high school." Putting the matter in another way, Professor Thorndike estimates the dropping out from Grade IV to Grade V as 9 per cent. of those entering school, from Grade V to VI as 13 per cent., from Grade VI to VII as 14 per cent., from Grade VII to the last grammar grade (usually VIII, but sometimes IX) as 14 per cent., and from the grammar school to the high school as 13 per cent. Dealing with elimination by age for a group of 25 cities in different parts of the country, he tells us that, of 100 pupils in school at eight, practically none drop out before twelve, while 9 leave when twelve years old, 18 at thirteen, 23 at fourteen, 17 at fifteen, 13 or 14 at sixteen, and 8 at seventeen.

Of the large number of boys and girls who thus leave school as soon as possible, between the ages of thirteen and fifteen, a

considerable proportion, as trades are not open to them, drift into unskilled or low-grade work. This is brought out clearly in the *Report of the Massachusetts Commission on Industrial and Technical Education* (April, 1906), which states that "33 per cent. of the children of this state who begin work between fourteen and sixteen are employed in unskilled industries, and 65 per cent. in low-grade industries; thus a little less than 2 per cent. are in high-grade industries." The following is the first of the general conclusions arrived at by the commission as a result of its investigation:

For the great majority of children who leave school to enter employments at the age of fourteen or fifteen, the first three or four years are practically waste years so far as the actual productive value of the child is concerned, and so far as increasing his industrial or productive efficiency. The employments upon which they enter demand so little intelligence and so little manual skill that they are not educative in any sense. For these children, many of whom now leave school from their own choice at the completion of the seventh grade, further school training of a practical character would be attractive and would be a possibility if it prepared for the industries. Hence any scheme of education which is to increase the child's productive efficiency must consider the child of fourteen.

As a result of special inquiries at the leading textile centers of the state, the Massachusetts report goes on to say "that neither power nor advantage is gained by entering the industry at an early age; that the child who does enter closes behind him the door to progress to a fair living wage; that that child associates himself with our most undesirable population; that the work performed by the children is passing gradually to poorer and poorer classes of foreigners; that industrial education or education of any kind will mean that the children will not enter the industry." Those who at present do so depend, as a rule, on casual employment, become in many cases idle and discontented, are always on the verge of poverty, and are centers and causes of much social unrest.

It is thought by many people that the educational preparation in question is supplied by the manual-training high schools. This is not so: the manual-training high school does little more than the elementary school to prepare for industrial and domestic life.

It does not profess or aim to do so. Like other high schools, it undertakes to prepare for college—hence its course is predominantly academic, rather than practical; and as a consequence it attracts few pupils who mean to become ordinary workmen and workwomen. Moreover, it teaches its graduates to look beyond the workshop—to go to technical schools or colleges, to aim at industrial leadership, not to remain in the rank and file. Finally, it holds its pupils even less well than the ordinary high school. This is brought out by the following figures, the first set, taken from Professor Thorndike's study above referred to, showing the elimination from 49 high schools in different cities in terms of the median ratios of the number of pupils in the second, third, and fourth years respectively to the number in the first year; and the second set, prepared by Mr. Selvidge, a graduate student at Teachers College, doing the same for 16 manual-training and technical high schools.

TABLE I: 49 HIGH SCHOOLS

Boys—	$\frac{n_2}{n_1}=0.66$	$\frac{n_3}{n_1}=0.39$	$\frac{n_4}{n_1}=0.25$
Girls—	$\frac{n_2}{n_1}=0.70$	$\frac{n_3}{n_1}=0.45$	$\frac{n_4}{n_1}=0.31$

TABLE II: 16 MANUAL-TRAINING HIGH SCHOOLS

Boys and Girls—	$\frac{n_2}{n_1}=0.65$	$\frac{n_3}{n_1}=0.35$	$\frac{n_4}{n_1}=0.22$
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These tables—where n_1 stands for the number of pupils in the first year, n_2 for the number in the second, and so on—show clearly that the retention of pupils by the ordinary high school, expressed in each succeeding year as a percentage of the number in the first year, is greater than that by the manual-training high school.

Nor does the ordinary trade school answer the purpose of holding pupils between the ages of twelve and fifteen. For these schools—which are practically all outside the public-school system—do not, as a rule, admit pupils under sixteen years of age, and in any case few boys or girls are ready to learn a special trade before fourteen or fifteen at the earliest. It is clear, therefore, that work is needed of such a nature as will appeal to the vital

interests of boys and girls from twelve to fourteen, who leave school in such large numbers from Grade VI upward, and who cannot enter a skilled trade before sixteen. Accordingly this work must be given in Grades VII and VIII, though it might well continue for a year longer, when special trade-work might begin. Public opinion is, apparently, not yet prepared for the establishment of a system of vocational training for trade, though we have already public education for commerce, law, medicine, engineering, and the teaching profession. The Massachusetts report, previously quoted, groups the callings for which children and youth need special preparation into four classes—professional, commercial, productive, and domestic—and shows that, while the first and second classes are sufficiently provided for, the other two (apart from a few scattered agricultural schools) are almost wholly neglected. The scheme about to be submitted is an attempt to fill at least the bottom of this gap in our educational system, a gap that appears in the upper grades of the elementary school. The training which should there be given should not, in the opinion of the writer, be a preparation for any particular trade, but should be directed to the cultivation of the motor powers, of habits of steady work, adaptability, and resourcefulness, and to the study of industrial processes in history and in modern life. In short, the objects aimed at should be intelligence, manual skill, and the appreciation of good workmanship.

It has been said that modern industry is machine industry, that the machine is the prime element in industrial life and must therefore form the center of any scheme of industrial education. As my scheme of work is not based on this principle, it may be well, before submitting it, to state my grounds for dissent. These are as follows: (a) The factory system, in its most familiar form, is not universal and not necessarily permanent, and educators must “look before and after.” (b) There is still room for craftsmen, if they have sufficient originality and skill. (c) The “handy man” is not only very useful in ordinary domestic city life, but is invaluable in the country and especially as a pioneer in new lands. [The objects aimed at can be obtained through work with hand tools.] (d) A proper machine

equipment would involve considerable expense, which few schools could afford to bear. (*e*) Boys of thirteen and fourteen are too young to work much with machines. (*f*) They can obtain sufficient elementary knowledge of machines by demonstrations on a few working models and by occasional visits to workshops and factories. (*g*) It is difficult to make a study of machines sufficiently representative and at the same time enable the pupils to acquire adequate mechanical knowledge and skill. (*h*) There is a strong tendency to approach machines from the technical side, by analyzing their mechanical elements and classifying them from the standpoint of the engineer, and thus making the study formal and (probably) uninviting to young boys, who are interested in products rather than in means and processes of production, which, as a rule, arouse only a temporary curiosity.

Having thus cleared the way, I shall proceed to set forth the curriculum I have in view, which may be entitled "An alternative course of study in Grades VII and VIII for boys of motor type who intend to follow a trade and for girls who wish to prepare for domestic and industrial life." In other words, the course is meant to be parallel with the ordinary academic course and to be open only to pupils who have passed through Grade VI. These might not be more than twelve years old, but doubtless the majority would be thirteen at least. The guiding principles of the proposed course may here be stated. They are these:

1. The course is quite unfettered by ordinary school traditions.
2. Manual work is the core of the course and receives rather more time than the academic work.
3. Shopwork for boys—in wood, metal, and (possibly) leather—is broad and varied, thus appealing to their diverse motor interests.
4. Manual work for girls includes (*a*) housewifery—cooking, sewing, dressmaking, millinery, laundry; and (*b*) domestic science and art.
5. The work is correlated as far as possible, but not slavishly so. (As Professor Dewey says, the best correlation is in the mind of the pupil.)

6. There is provision for physical training for both sexes.

7. The English read in class should be distinctly literary, and should be studied for appreciation, not for dissection. All formal work should be done in connection with composition.

SUGGESTED COURSE

GRADE VII

Boys	Periods per Week	Minutes	Girls	Periods per Week	Hours
Shopwork (wood)—			Sewing, knitting, darning ($\frac{3}{4}$ yr.)	5	$3\frac{3}{4}$
Individual work.....10 }	15	675	Machine sewing ($\frac{1}{4}$ yr.).....		
Group work.....5 }			Cooking (plain).....	5	$3\frac{3}{4}$
Drawing (freehand and mechanical).....	5	225	Freehand drawing, brushwork, design.....	6	$4\frac{1}{2}$
Practical mathematics.....	5	225	Practical mathematics.....	5	$3\frac{3}{4}$
English.....	4	180	English.....	6	$4\frac{1}{2}$
Industrial geography and history.....	3	135	Industrial geography and history.....	3	$2\frac{1}{4}$
Singing.....	1	45	Singing.....	2	$1\frac{1}{2}$
Physical exercise.....	2	90	Physical exercise.....	3	$2\frac{1}{4}$
Total.....	35	1,575	Total.....	35	$26\frac{1}{4}$

GRADE VIII

Boys	Periods per Week	Hours	Girls	Periods	Minutes
Shopwork—			Cooking (plain, fancy, invalid).....	5	225
in metal ($\frac{1}{4}$ yr.)	15	$11\frac{1}{4}$	Dressmaking and embroidery ($\frac{3}{4}$ yr.).....	5	225
in metal or leather ($\frac{1}{4}$ yr.)			Machine sewing ($\frac{1}{4}$ yr.).....		
in wood ($\frac{1}{4}$ yr.)	6	$4\frac{1}{2}$	Millinery ($\frac{3}{4}$ yr.), laundry ($\frac{1}{4}$ yr.).....	5	225
Mechanical drawing.....	4	3	Domestic art.....	6	270
Applied science.....	4	3	Domestic science.....	4	180
English.....	4	3	English.....	4	180
Civics.....	1	$\frac{3}{4}$	Civics.....	1	45
Economic and business methods.....	3	$2\frac{1}{4}$	Business conditions and methods.....	2	90
Physical exercise.....	2	$1\frac{1}{2}$	Physical exercise.....	3	135
Total.....	35	$26\frac{1}{4}$	Total.....	35	1,575

8. Pupils should be encouraged to read books at home and report on them in school, especially biographies, histories, and books of travel.

9. The aim should be to prepare boys and girls to become industrious, skillful, and resourceful workers—not mere tenders of machines—and also honest, intelligent, and public-spirited citizens.

10. The school day consists of seven 45-minute periods, and there should be a minimum of home-work.

Some details may be added as to the work that should be attempted under some of the various heads.

SHOPWORK

In wood.—Trays, bookshelves, hat-racks, plate-racks, towel-racks, foot-stools, picture-frames, handkerchief-, tie-, and collar-boxes, chairs, tables, book-cases, desks, cabinets, etc., including articles for school-room use and decoration.

In metal.—Trays, bowls, vases, candlesticks, lamp-shades, picture-frames, etc.

Study of materials and tools. Original design should be encouraged.

PRACTICAL MATHEMATICS

Fundamental processes, with whole numbers, common and decimal fractions; approximations; methods of checking.

Weights and measures, including the metric system.

Practical applications, including the following: (a) Accounts—personal, household, business, bank; (b) Buying and selling—commercial discount, gain and loss, etc.; (c) Borrowing, lending, and investing money—notes, simple interest, bank discount; savings banks, stocks and bonds, life and property insurance; building and loan associations; (d) Canceling indebtedness—checks, drafts, postal money orders, express money orders.

Easy practical geometry and mensuration.

Graphical methods.

Use of simple algebraic methods, when feasible.

NOTE.—All the above could not be done in one year in the time allotted. The mathematical classes in any case would probably need to be taught in two sections, the lower section covering the more elementary part of the work, the upper the more advanced.

ENGLISH

Reading of good literature in prose and poetry; adequate practice in composition, especially friendly and business letters, replies to advertisements, and discussion of magazine articles and current events; occasional debates.

INDUSTRIAL GEOGRAPHY AND HISTORY

Sources of supply of raw materials—wood of different kinds; coal, iron, steel, copper; leather; wool, cotton, flax.

Location, origin, and growth of the leading industries.
Transportation by land and water—historical development.

BUSINESS CONDITIONS AND METHODS

Trade conditions; relations of employer and employed; division of labor; supply and demand; wages; healthy and unhealthy occupations; companies, unions, strikes, etc.; laws affecting labor; bookkeeping and office methods.

APPLIED SCIENCE

Personal, household, and municipal hygiene—lighting, heating, ventilation, drainage; simple mechanical and electrical applications; bacteria and infectious diseases; accidents and first aid; tobacco, alcohol, and narcotics.

DOMESTIC SCIENCE

Personal and household hygiene; waste products; baths and ventilation; clothing materials; dietetics, including milk and water supply; infectious diseases and their treatment; accidents and first aid; sick-nursing and rearing of children.

DOMESTIC ART

Model-, plant-, and figure-drawing; lettering and illuminating; pottery and leather-work; study of pictures, rugs, and drapery; house-furnishing and decoration.

A suitable time-table for the suggested course of work would be a school day of seven periods, beginning at 9 A. M. and ending at 4 P. M., with assembly from 9 to 9:15 A. M., recesses from 10:45 to 11 A. M., and 3 to 3:15 P. M., and a dinner interval from 12:30 to 1:30 P. M. It would not be advisable, at least in the first instance, to have work lasting longer than the usual school hours. If the course could be extended to three years, the academic work in the third year should be of a nature similar to that above outlined, while the manual work should be specialized and elective, becoming direct preparation for a particular trade.

It may be interesting, for purposes of comparison, to give the time-schedules of two English schools with much the same aim. First, that of the Borough Technical Institute Day School, London, with a three-year course for boys only; second, that of the Holbeck Preparatory Trade School, Leeds (boys). Here the second-year course is on lines similar to the first-year, but the more advanced and best pupils are encouraged to specialize. There is also specialization for a particular trade or group of trades in the third year of the London Borough Technical Institute School.

There has been much recent discussion as to whether schools

BOROUGH TECHNICAL INSTITUTE (LONDON) TIME-SCHEDULE
HOURS PER WEEK

	First Year	Second Year	Third Year
Mathematics.....	5	4	4½
English subjects.....	6	3	3
Science.....	4	4½	6
Mechanical drawing.....	4	5	5
Art.....	2	1½	..
French.....	..	3	3
Workshop.....	5	5	7½
Physical exercise.....	1½	1½	1
Total.....	27½	27½	30

HOLBECK PREPARATORY TRADE SCHOOL (LEEDS) TIME-
SCHEDULE

HOURS PER WEEK

	First Year
Practical mathematics.....	5
Mechanics.....	3
Technical drawing.....	4½
Metal work.....	6
Woodwork.....	2
English.....	6
Drill.....	1
Total.....	27½

should prepare for vocation or avocation. The course of study suggested is frankly and primarily planned as a training for vocation; but it would be a preparation for avocation as well, culture and the proper use and enjoyment of leisure being directly aimed at in the work in English—designed to encourage reading and the love of good literature—and also in the work in art. I believe that such a course would attract and hold many boys and girls to whom the ordinary school curriculum makes little or no appeal and who at present leave school at the earliest opportunity. They would thus be greatly aided to become, not only more efficient bread-winners and home-makers, but also happier men and women and better citizens.

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